



Difficult Intravenous Starts Using Ultrasound Guided Technique

BACKGROUND

- The ability to place an IV line in a timely and effective manner is crucial, affecting patient safety, decreasing the time the patient spends in the emergency department, and significantly improving patient satisfaction
- 25% to 33% of emergency patients have poor vasculature and/or other factors which may impede IV access
- Ultrasound assists in identifying appropriate vessels and insertion sites for those with poor vasculature/risk for difficult IV access
- Ultrasound guidance techniques can be taught to nurses
- The Difficult IV Access (DIVA) tool is a predictive tool helping nurses to identify patients with difficult vasculature by assigning a numerical value based on specific characteristics

PURPOSE

- The overarching purpose of this study was to achieve timely IV access in emergency patients with a minimal number of attempts
- Sub-aims included:
 - Testing the efficacy of the DIVA tool to identify emergency patients that are predicted to have poor vasculature or be a difficult IV start
 - Increasing the number of Emergency Care Center (ECC) RNs who are trained in using ultrasound to guide IV starts

REFERENCES

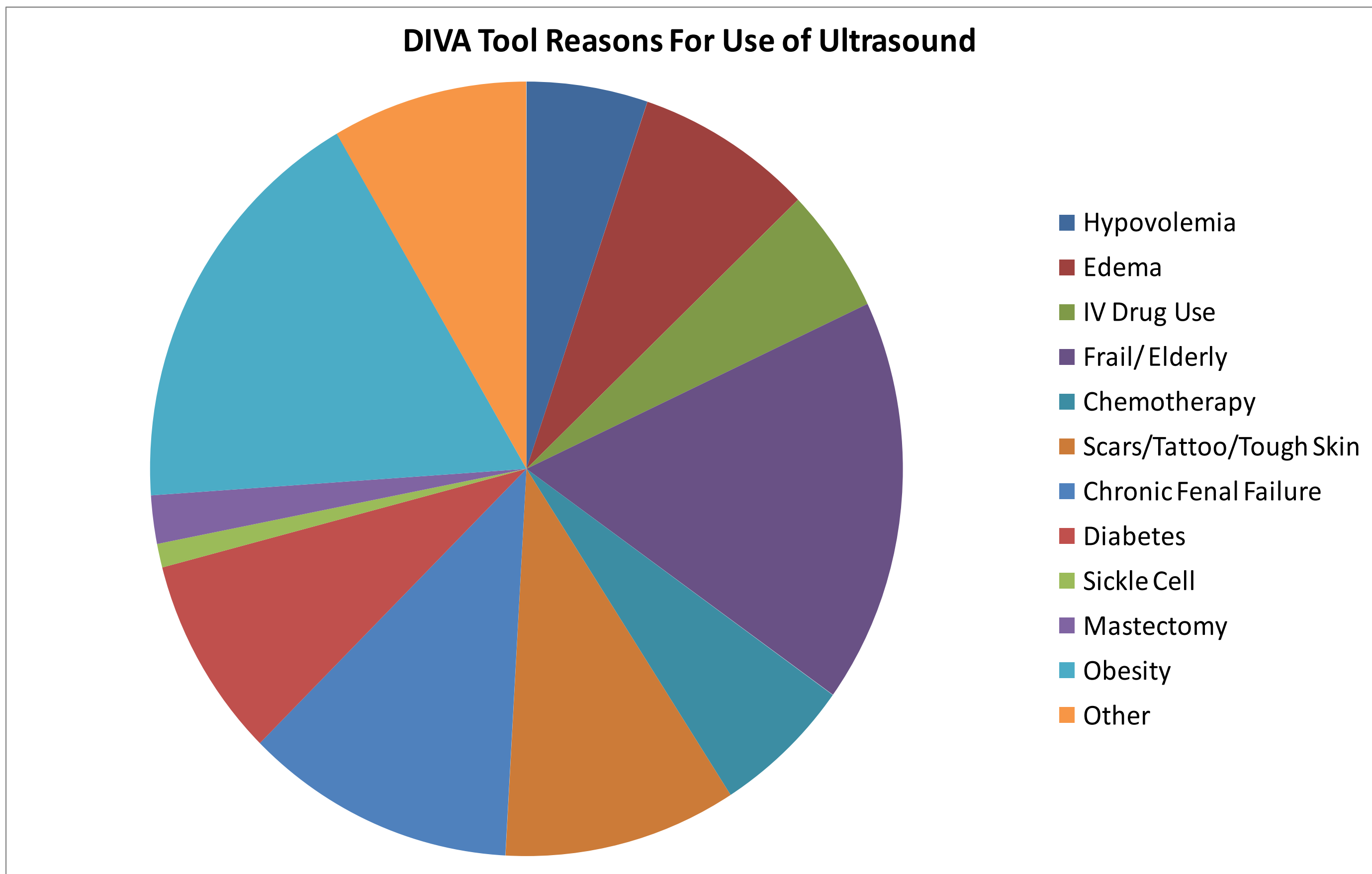
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METHODS

- Design: Evidence-based practice
- Participants: ECC RNs
- Setting: ECC at St Joseph Hospital, Orange
- Intervention:
 - 4-hour didactic and experiential training course provided to 8 ECC RNs and 19 ICU/DSU RNs
 - RNs were trained to use the DIVA tool to identify patients with difficult vasculature
 - Data for the project was to be collected by having nurses who completed an ultrasound guided IV fill out the DIVA tool and record number of attempts in the Ultrasound Binder

LIMITATIONS

- There was limited availability for follow-up on nurses from other departments who were trained to use the ultrasound guided IV technique. The ability to establish effective placement, number of attempts, and DIVA scores were not obtained outside of the ECC



RESULTS

Data Collection: December 2020 to July 2021

- 178 ultrasound guided IVs were started
- The average number of IV attempts with ultrasound was 1.25 per patient
- 80.9% ultrasound guided IV attempts were successful with the first attempt
- Most common indications for ultrasound IV start:
 - Obesity (17.7%)
 - Frail/Elderly (16.9%)
 - Chronic Renal Failure (11.6%)

FURTHER STUDY

- Identify the number of IVs placed by ultrasound that result in extravasation
- Continue to collect data regarding the number of ultrasound IV starts performed
- Identify actual number of IV attempts per patient with and without IV ultrasound to determine the impact of ultrasound on IV starts
- Consider Patient Satisfaction Survey to determine impact of interventions to decrease the number of IV attempts

CONCLUSION

- Increased training of staff for IV starts and wider availability of ultrasound guided IVs has provided staff with the tools to achieve timely IV access for emergency patients